

WHAT IS CLAIMED IS:

1. A microscope having a microscope stage assembly comprising at least one x-y control, for moving the stage assembly or a portion thereof in a horizontal x direction, which x direction is parallel to the shoulders of an operating microscopist sitting square to the microscope, and for moving the stage assembly or portion thereof in a horizontal y direction perpendicular to the x direction and dual controls for moving the stage assembly or a portion thereof in a z direction perpendicular to the x-y directions and coincident or parallel to an optical path into an objective lens of the microscope, wherein the x-y control and z controls are located so as to permit single hand operation of both the x-y control and one of the z controls with minimal hand movement or so as to permit comfortable ergonomic dual hand operation of the x-y control and one of the z controls while permitting the shoulders of an operating microscopist to remain aligned parallel to the x direction.
2. A microscope comprising at least one ocular lens, at least one objective lenses and a microscope stage assembly which in turn has a stage planar surface,
said stage assembly comprising:
means for attachment to a frame of the microscope so that the planar surface is essentially perpendicular to an optical path through a center of the objective lens; and
an object holder for holding an object for examination by the microscope;
means for moving the object holder relative to the optical path so that a held specimen moves in a direction parallel or coincident with the optical path said means comprising at least one rotatable focusing knob attached to a pinion to move a rack that moves the stage in the z direction; and

means for moving the object holder in an x or y direction perpendicular to the z direction so that a held specimen moves through the optical path parallel to the planar surface, said means for moving the object holder comprising at least a first control knob mounted so as to intersect a rotational axis of the rotatable focusing knob of the microscope, when the optical path passes through a center of a specimen holding area of the object holder.

3. The microscope of claim 2 wherein the means for attachment comprises a mounting bracket connected between the frame and the stage with attachment screws.

4. The microscope of claim 3 wherein the means for moving the object holder comprises a means for moving the entire stage.

5. The microscope of claim 2 wherein the means for moving the object holder comprises a pinion rotatably attached to the stage that engages with a rack rigidly attached to the frame so that rotation of the pinion moves the stage relative to the frame.

6. The microscope of claim 5 wherein the rack is rigidly attached to the frame by means of the mounting bracket.

7. The microscope of claim 5 wherein the control knob is attached to the pinion so that rotation of the control knob rotates the pinion to move the stage.

8. The microscope of claim 2 wherein the means for moving the object holder comprises a means for moving the object holder relative to the planar surface of the stage.
9. The microscope of claim 8 wherein the means for moving the object holder comprises a belt loop attached to the object holder that passes around pulleys rotatably mounted to the stage wherein said cable attachment to the object holder is located between said pulleys.
10. The microscope of claim 9 wherein the control knob is attached to one of said pulleys so that rotation of the control knob rotates the pulley to move the belt and attached object holder relative to the planar surface of the stage.
11. The microscope of claim 4 wherein the means for moving the object holder further comprises a means for moving the object holder relative to the planar surface of the stage.
12. The microscope of claim 11 wherein the means for moving the object holder relative to the planar surface of the stage comprises a belt loop attached to the object holder that passes around pulleys rotatably mounted to the stage wherein said belt attachment to the object holder is located between said pulleys.
13. The microscope of claim 12 wherein a control knob coaxial with the first control knob is attached to one of said pulleys so that rotation of the second control knob rotates the pulley to move the belt and attached object holder relative to the planar surface of the stage.

14. The microscope of claim 13 wherein the first control knob rotates the pinion so as to move the stage in a direction perpendicular to the rotational axis of the focusing knob.
15. The microscope of claim 14 wherein the second control knob rotates the pulley so as to move the object holder in a direction parallel to the rotational axis of focusing knob.
16. The microscope of claim 1 wherein the microscope has stereo oculars and the x axis is parallel to a line through the center of the oculars.
17. The microscope of claim 2 wherein the microscope has stereo oculars and the rotational axis of the focusing knob is parallel to a line through the center of the oculars.
18. The microscope of claim 1 wherein the z controls comprise a right side set and a left side set of course and fine adjustable rotatable knobs having rotational axes oriented in the x direction.
19. The microscope of claim 18 wherein a first fine adjustment knob and a first course adjustment knob, on the same rotational axis, are proximate the x-y control so that the x-y control, first fine adjustment knob and first course adjustment knob can be manipulated by a single hand without movement of the forearm.

20. The microscope of claim 18 wherein a first of the fine adjustment knobs is proximate the x-y control and comprises a width along its rotational axis that is truncated relative to a second fine adjustment knob distally removed from the x-y control.
21. The microscope of claim 20 wherein a rotational axis of the first course adjustment knob intersects the x-y control at all positions of the object holder.